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QuickBase® Multi-Process System Architecture

December 20, 2001

Jim Salem

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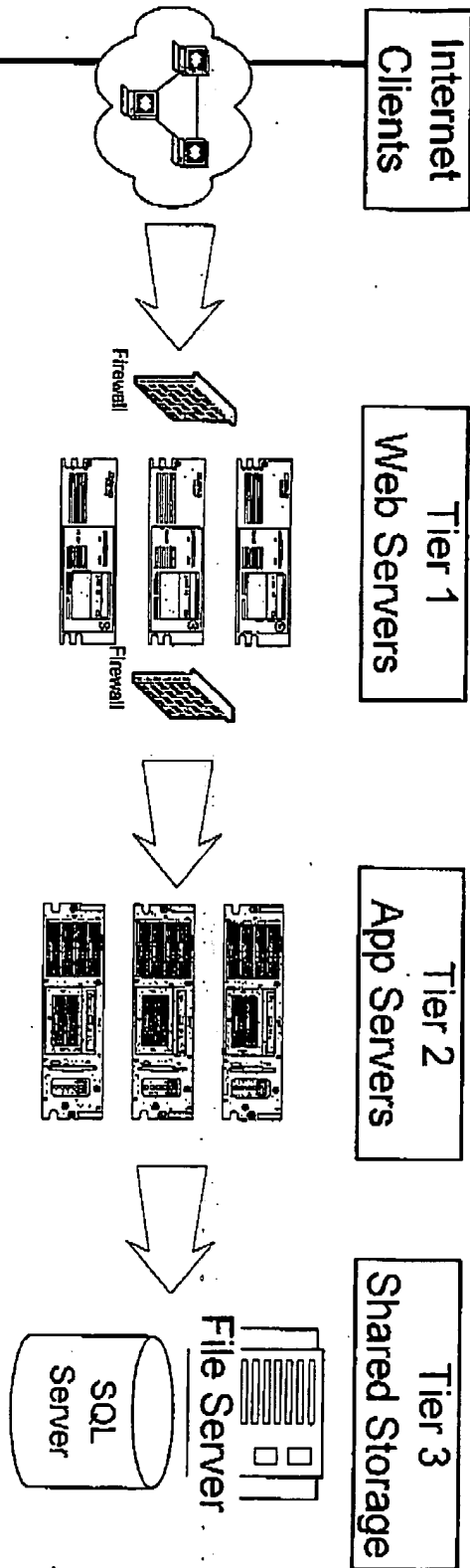


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Goals

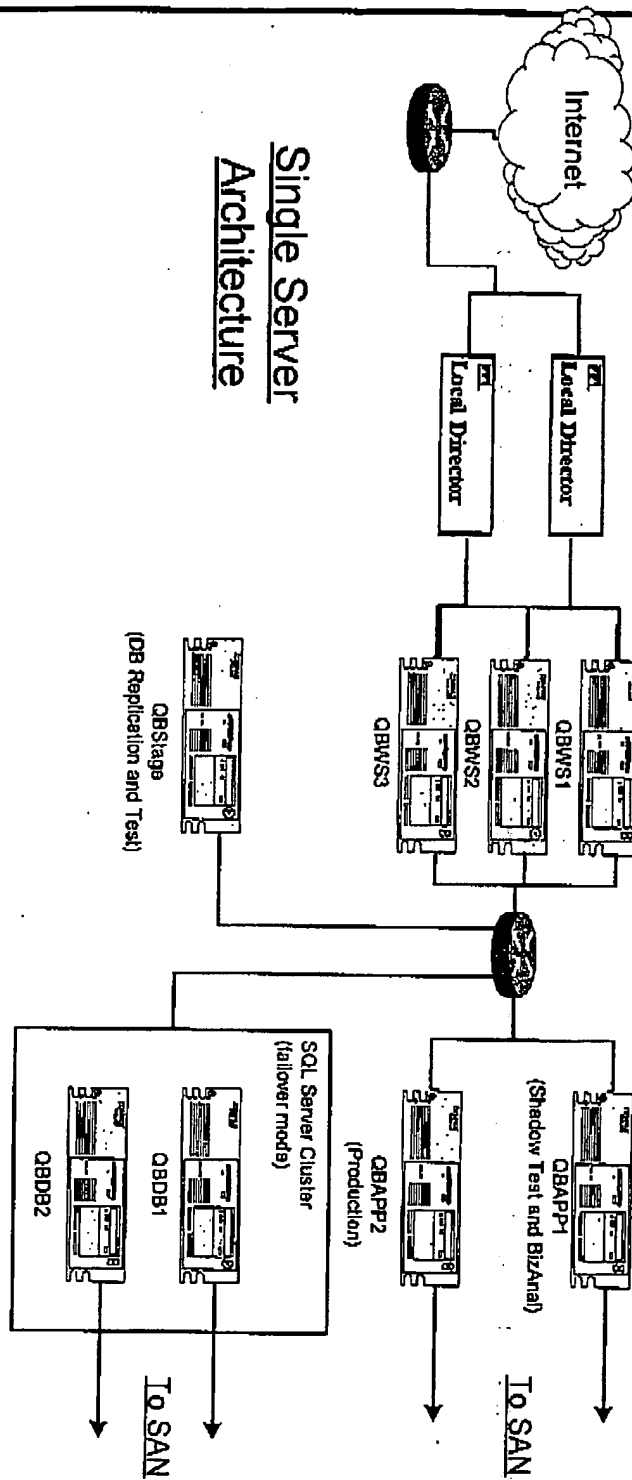
- Single Machine Scalability – at least 5x over current levels
- Multiple Machine Scalability – 100x over current levels
 - 600 transactions/second
 - 500K users per day
 - 500K different DBs per day
- Security
- Easy to Manage
- Support Rapid Development
 - Simple Deployment
 - Shadow Testing

Three-Tier Architecture



Role	Buffers Requests SSL Encryption Static Content	DB Transactions UI Generation	DB Backing Store System Data
Machine Types	Simple servers Non-redundant	Fast servers Redundant	Clustered Fast servers RAID 5
Process Type	Stateless	Loaded DBs assigned to one server	Multi-threaded with locking

Hardware Diagram (Current)

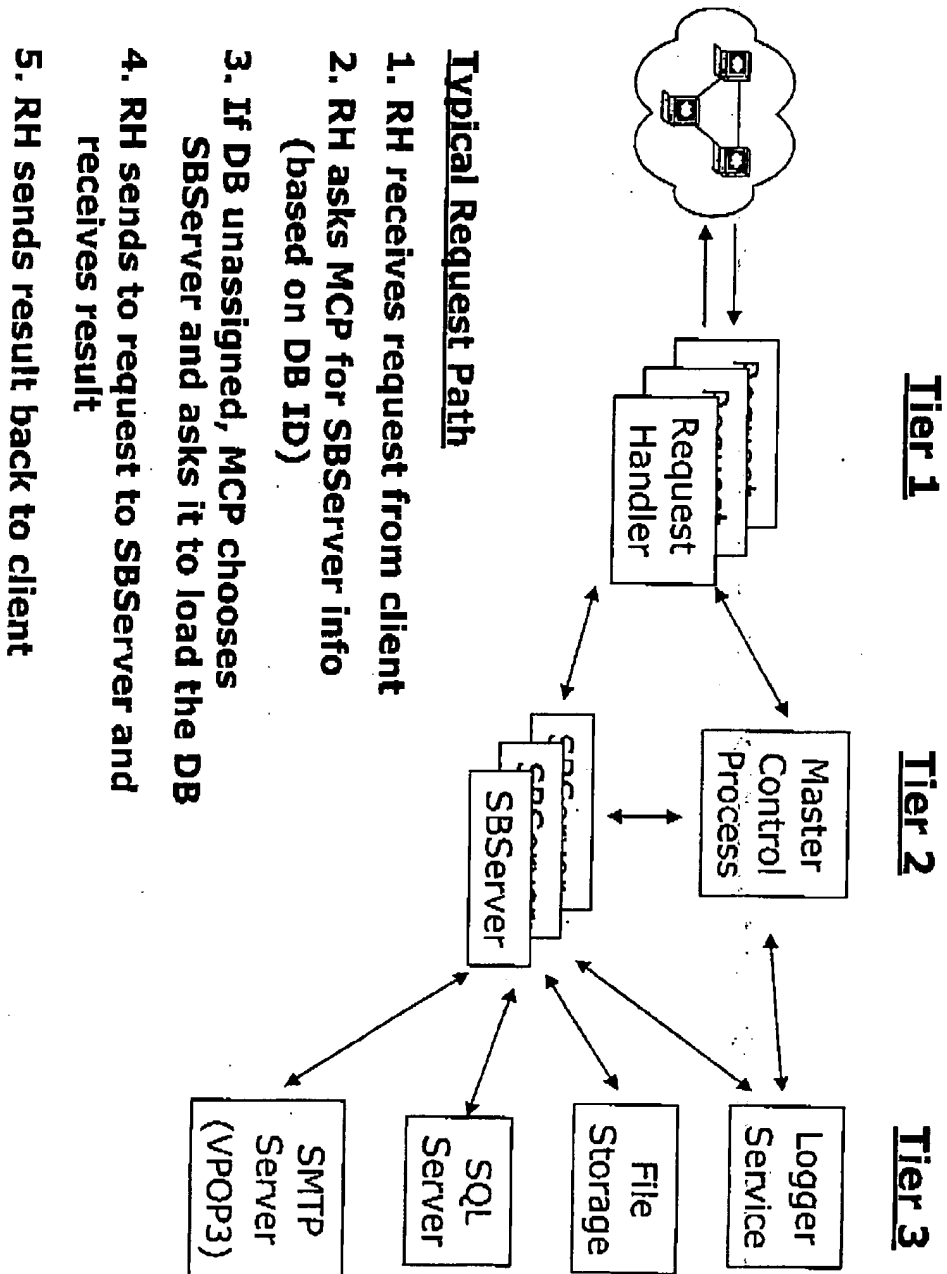


Single Server Architecture

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Process Architecture



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Request Handler Processes

- Runs on Web Server machines (tier 1)
- Buffers request and response between SBServers and client machines
- Displays "Server Unavailable" page if SBServer unavailable
- Web Server (IIS) manages these processes
- Two types (currently)
 - Normal (aka CGI)
 - File Download (aka ISAPI)
- Proposed additional types (future)
 - File Upload
 - XSL Transform
 - MSWord Doc merge

Master Control Process

- Runs on Application Server (tier 2)
- Assigns DBs to SBServers
- Tells RHs which SBServer to use
- Assigns unique DB IDs
- There is a single, multi-threaded MCP

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SBServer Processes

- Runs on Application Server Machine (tier 2)
- Handles requests
 - Main requests
 - E.G., User profile changes, My QuickBase
 - DB requests
 - E.G., Views, Add Record
- Layers
 - UI
 - DB engine

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SQL Server

- Runs on DB Server Machine (tier 3)
- Stores shared information
 - DB names, ACLs, etc.
 - User information
 - Statistics
- MS SQLServer 2000
- Multi-threaded

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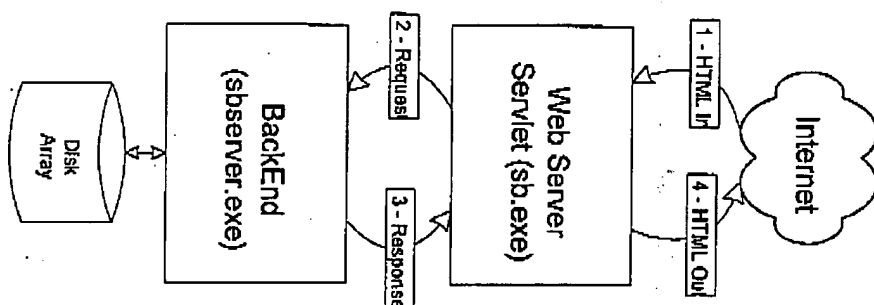
File Storage

- Runs on Storage Area Network (tier 3)
- Uses Compaq StorageWorks
- Future: Dedicated File Server

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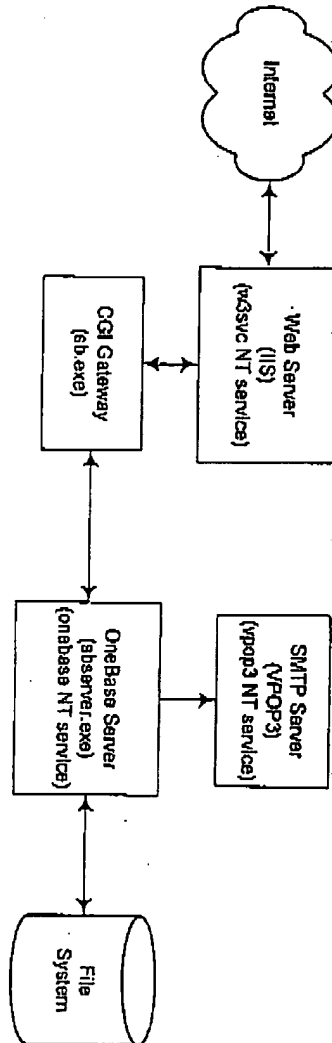
Old Single Process Architecture – Request Flow



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Old Single Process Architecture – Processes



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FROM: Daniel R. Brownstone**PHONE:** (415) 875-2358**RE:** Application 10/081,525**NUMBER OF PAGES WITH COVER PAGE:** 13**MESSAGE:**

Please find attached a copy of Exhibit A to the November 7, 2005 declaration of James Salem.

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